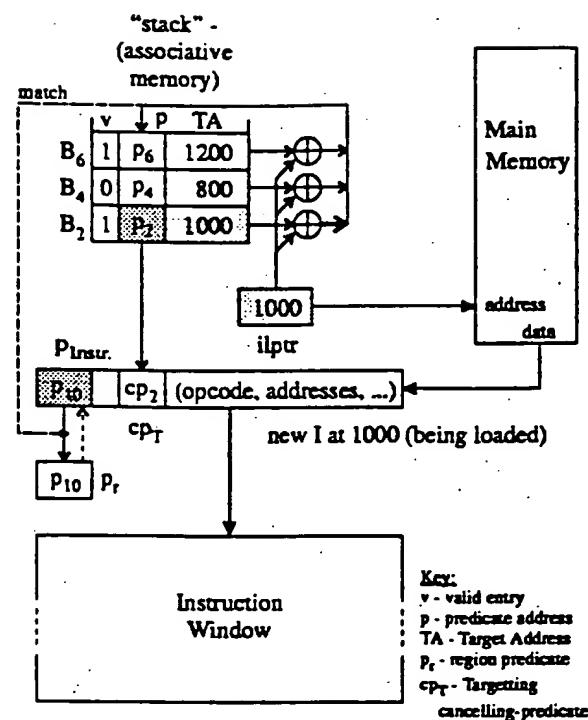


FIG. 1



Snapshot taken at  $t = 94$  of Example 5.  
- new I matches target address in stack

FIG. 2

load time	address	code		predicate-assignment (at load time)				predicate-use (at code execution time)				
				B	v	p	TA	$p_{in}=p_r$	$cp_{in}$	$p_{out}$	$cp_{out}$	$p_r$ - condition for I execution
1	100	I <sub>1</sub>	$z = x \text{ op } y$				empty	1	0	$p_1=1$	-	1
2	200	B <sub>2</sub>	if ( $bc_2$ ) goto 400	B <sub>2</sub>	1	P <sub>2</sub>	400	1	0	$p_2=\overline{bc}_2$	$bc_2$	1
3	300	I <sub>3</sub>		B <sub>2</sub>	1	P <sub>2</sub>	400	P <sub>2</sub>	0	-	-	$\overline{bc}_2$
4	400	I <sub>4</sub> ←					empty	P <sub>2</sub>	$cp_2$	$\overline{bc}_2+bc_2$	-	$\overline{bc}_2+bc_2=1$
5	500	I <sub>5</sub>					empty	P <sub>4</sub>	0	-	-	$p_4=1$
6	600	B <sub>6</sub>	if ( $bc_6$ ) goto 800	B <sub>6</sub>	1	P <sub>6</sub>	800	P <sub>4</sub>	0	$\overline{bc}_6 \cdot p_4$	$bc_6 \cdot p_4$	1
7	700	I <sub>7</sub>		B <sub>6</sub>	1	P <sub>6</sub>	800	P <sub>6</sub>	0	-	-	$\overline{bc}_6$
8	800	I <sub>8</sub> ←					empty	P <sub>6</sub>	$cp_6$	$\overline{bc}_6+bc_6$	-	$\overline{bc}_6+bc_6=1$
9	900	I <sub>9</sub>					empty	P <sub>8</sub>	0	-	-	$p_6=1$

Equations - for 'T':  $p_T=p_{out}=p_{in}+cp_{in}$ ; for 'B':  $p_{out}=\overline{bc} \cdot p_{in}$ ,  $cp_{out}=bc \cdot p_{in}$

FIG. 3

load time	address	code	predicate-assignment (at load time)				predicate-use (at code execution time)				
			B	v	p	TA	$p_{in} = p_r$	$cp_{in}$	$p_{out}$		
1	100	I <sub>1</sub>				empty	1	0	$p_1 = 1$	-	1
2	200	B <sub>2</sub>	if ( $bc_2$ ) goto 800	B <sub>2</sub>	1	P <sub>2</sub> 800	1	0	$p_2 = \overline{bc}_2$	$bc_2$	1
3	300	I <sub>3</sub>		B <sub>2</sub>	1	P <sub>2</sub> 800	P <sub>2</sub>	0	-	-	$\overline{bc}_2$
4	400	B <sub>4</sub>	if ( $bc_4$ ) goto 600	B <sub>4</sub>	1	P <sub>4</sub> 600	P <sub>2</sub>	0	$\overline{bc}_4 \cdot p_2$	$bc_4 \cdot p_2$	1
				B <sub>2</sub>	1	P <sub>2</sub> 800					
5	500	I <sub>5</sub>		B <sub>4</sub>	1	P <sub>4</sub> 600	P <sub>4</sub>	0	-	-	$\overline{bc}_2 \cdot \overline{bc}_4$
				B <sub>2</sub>	1	P <sub>2</sub> 800					
6	600	I <sub>6</sub> ←		B <sub>2</sub>	1	P <sub>2</sub> 800	P <sub>4</sub>	$cp_4$	$p_4 + cp_4$	-	$\overline{bc}_4 \cdot \overline{bc}_2 + bc_4 \cdot \overline{bc}_2 = \overline{bc}_2$
				B <sub>2</sub>	1	P <sub>2</sub> 800	P <sub>6</sub>	0	-	-	$\overline{bc}_2$
7	700	I <sub>7</sub>				empty	P <sub>6</sub>	$cp_2$	$p_6 + cp_2$	-	$\overline{bc}_2 + bc_2 = 1$
8	800	I <sub>8</sub> ←				empty	P <sub>8</sub>	0	-	-	1
9	900	I <sub>9</sub>				empty					

Equations - for "T":  $p_l = p_{out} = p_{in} + cp_{in}$ ; for "B":  $p_{out} = \overline{bc} \cdot p_{in}$ ,  $cp_{out} = bc \cdot p_{in}$

FIG. 4

load time	address	code	z = x op y	predicate-assignment (at load time)				predicate-use (at code execution time)				
				B	v	p	TA	$p_{in} = p_r$	$cp_{in}$	$p_{out}$	$cp_{out}$	$p_l$ - condition for I execution
1	100	I <sub>1</sub>					empty	1	0	$p_1 = 1$	-	1
2	200	B <sub>2</sub>	if (bc <sub>2</sub> ) goto 600	B <sub>2</sub>	1	P <sub>2</sub>	600	1	0	$p_2 = \overline{bc}_2$	$\overline{bc}_2$	1
3	300	I <sub>3</sub>		B <sub>2</sub>	1	P <sub>2</sub>	600	P <sub>2</sub>	0	-	-	$\overline{bc}_2$
4	400	B <sub>4</sub>	if (bc <sub>4</sub> ) goto 800	B <sub>4</sub>	1	P <sub>4</sub>	800	P <sub>2</sub>	0	$\overline{bc}_4 \cdot p_2$	$\overline{bc}_4 \cdot p_2$	1
				B <sub>2</sub>	1	P <sub>2</sub>	600					
5	500	I <sub>5</sub>		B <sub>4</sub>	1	P <sub>4</sub>	800	P <sub>4</sub>	0	-	-	$\overline{bc}_4 \cdot \overline{bc}_2$
				B <sub>2</sub>	1	P <sub>2</sub>	600					
6	600	I <sub>6</sub> ←		B <sub>4</sub>	1	P <sub>4</sub>	800	P <sub>4</sub>	$cp_2$	$p_4 + cp_2$	-	$(\overline{bc}_4 \cdot \overline{bc}_2) + bc_2 = \overline{bc}_4 + bc_2$
				B <sub>2</sub>	0	P <sub>2</sub>	600					
7	700	I <sub>7</sub>		B <sub>4</sub>	1	P <sub>4</sub>	800	P <sub>6</sub>	0	-	-	$\overline{bc}_4 + bc_2$
				B <sub>2</sub>	0	P <sub>2</sub>	600					
8	800	I <sub>8</sub> ←			empty			P <sub>6</sub>	$cp_4$	$p_6 + cp_4$	-	$\overline{bc}_4 + bc_2 + (\overline{bc}_4 \cdot \overline{bc}_2) = 1$
					empty							
9	900	I <sub>9</sub>			empty			P <sub>8</sub>	0	-	-	1

Equations - for "T":  $p_l = p_{out} = p_{in} + cp_{in}$ ; for "B":  $p_{out} = \overline{bc} \cdot p_{in}$ ,  $cp_{out} = bc \cdot p_{in}$

FIG. 5

load time	address	code	predicate-assignment (at load time)				predicate-use (at code execution time)		
			stack			$p_{in} = p_r$	$p_{out}$	$cp_{out}$	$p_1$ - condition for I execution
1	100	I <sub>1</sub>	$z = x \text{ op } y$		empty		1	0	$p_1 = 1$
2	200	B <sub>2</sub>	if ( $bc_2$ ) goto 1000	B <sub>2</sub>	1   P <sub>2</sub>   1000		1	0	$p_2 = \overline{bc}_2$
3	300	I <sub>3</sub>		B <sub>2</sub>	1   P <sub>2</sub>   1000		P <sub>2</sub>	0	$\overline{bc}_2$
4	400	B <sub>4</sub>	if ( $bc_4$ ) goto 800	B <sub>4</sub>	1   P <sub>4</sub>   800		P <sub>2</sub>	0	$\overline{bc}_4 \cdot p_2$
				B <sub>2</sub>	1   P <sub>2</sub>   1000				$bc_4 \cdot p_2$
5	500	I <sub>5</sub>		B <sub>4</sub>	1   P <sub>4</sub>   800		P <sub>4</sub>	0	$\overline{bc}_4 \cdot \overline{bc}_2$
				B <sub>2</sub>	1   P <sub>2</sub>   1000				
6	600	B <sub>6</sub>	if ( $bc_6$ ) goto 1200	B <sub>6</sub>	1   P <sub>6</sub>   1200		P <sub>4</sub>	0	$\overline{bc}_6 \cdot p_4$
				B <sub>4</sub>	1   P <sub>4</sub>   800				$bc_6 \cdot p_4$
				B <sub>2</sub>	1   P <sub>2</sub>   1000				1
7	700	I <sub>7</sub>		B <sub>6</sub>	1   P <sub>6</sub>   1200		P <sub>6</sub>	0	$\overline{bc}_6 \cdot \overline{bc}_4 \cdot \overline{bc}_2$
				B <sub>4</sub>	1   P <sub>4</sub>   800				
				B <sub>2</sub>	1   P <sub>2</sub>   1000				
8	800	I <sub>8</sub>		B <sub>6</sub>	1   P <sub>6</sub>   1200		P <sub>6</sub>	$cp_4$	$(\overline{bc}_6 \cdot \overline{bc}_4 \cdot \overline{bc}_2) + (bc_4 \cdot \overline{bc}_2)$
				B <sub>4</sub>	0   P <sub>4</sub>   800				$= (\overline{bc}_6 + bc_4) \overline{bc}_2$
				B <sub>2</sub>	1   P <sub>2</sub>   1000				
9	900	I <sub>9</sub>		B <sub>6</sub>	1   P <sub>6</sub>   1200		P <sub>8</sub>	0	$(\overline{bc}_6 + bc_4) \overline{bc}_2$
				B <sub>4</sub>	0   P <sub>4</sub>   800				
				B <sub>2</sub>	1   P <sub>2</sub>   1000				
10	1000	I <sub>10</sub>		B <sub>6</sub>	1   P <sub>6</sub>   1200		P <sub>8</sub>	$cp_2$	$((\overline{bc}_6 + bc_4) \overline{bc}_2) + bc_2$
									$= \overline{bc}_6 + bc_4 + bc_2$
11	1100	I <sub>11</sub>		B <sub>6</sub>	1   P <sub>6</sub>   1200		P <sub>10</sub>	0	$\overline{bc}_6 + bc_4 + bc_2$
12	1200	I <sub>12</sub>			empty		P <sub>10</sub>	$cp_6$	$\overline{bc}_6 + bc_4 + bc_2 + (\overline{bc}_6 \cdot \overline{bc}_4 \cdot \overline{bc}_2) = 1$
13	1300	I <sub>13</sub>			empty		P <sub>12</sub>	0	1

Equations - for "T":  $p_1 = p_{out} = p_{in} + cp_{in}$ ; for "B":  $p_{out} = \overline{bc} \cdot p_{in}$ ,  $cp_{out} = bc \cdot p_{in}$

FIG. 6